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Investigation of elastic characteristics of bitumen core

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Abstract

© SGEM2018. There are rich heavy oil resources in Russia. The paper deals with bituminous sandstones in the southeast of the Republic of Tatarstan (central Russia). The shallow depth and high reservoir thickness of these deposits are very favorable factors for the heavy viscous oil development. Due to this, heavy viscous oil deposits of this territory are of great interest. The conventional approaches for reservoir characterization and development monitoring are complicated for such bituminous deposits. Currently, in the frame of Complex project for heavy oil shallow deposits development the development process monitoring is carried out by surface geophysics methods, including electrical prospecting and shallow seismic survey. The work presented is focused on the study of acoustic characteristics of bitumen-saturated sandstones in order to estimate the change in these parameters under the influence of hot steam used in SAGD technology. The core analysis results obtained can serve as the basis for the interpretation of the shallow seismic data and for the seismic modeling. The reservoir characterization was conducted basing on well logging data, geological core description and lithological features. The influence of the lithological anisotropy of the reservoir layer on the change in acoustic parameters in the reservoir is discussed.

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Keywords

Core study, Elastic properties, Rock physics, Shallow seismic

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